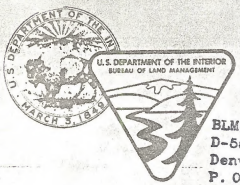
ID-8601315

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
PORTLAND SERVICE CENTER
P. O. Box 3861
Portland, Oregon 97208

4400 (P-712a)

PS-68-112
DSe-68-49 8/27/68



TECHNICAL NOTES

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August 1, 1968

TOTAL AVAILABLE CARBOHYDRATES IN ROOTS AND CROWNS OF FIVE BROWSE AND THREE GRASS SPECIES

These data are preliminary results of two years of studies on a Bureau of Land Management - Utah State University cooperative research project on the plants listed at two locations in Box Elder County, Utah.

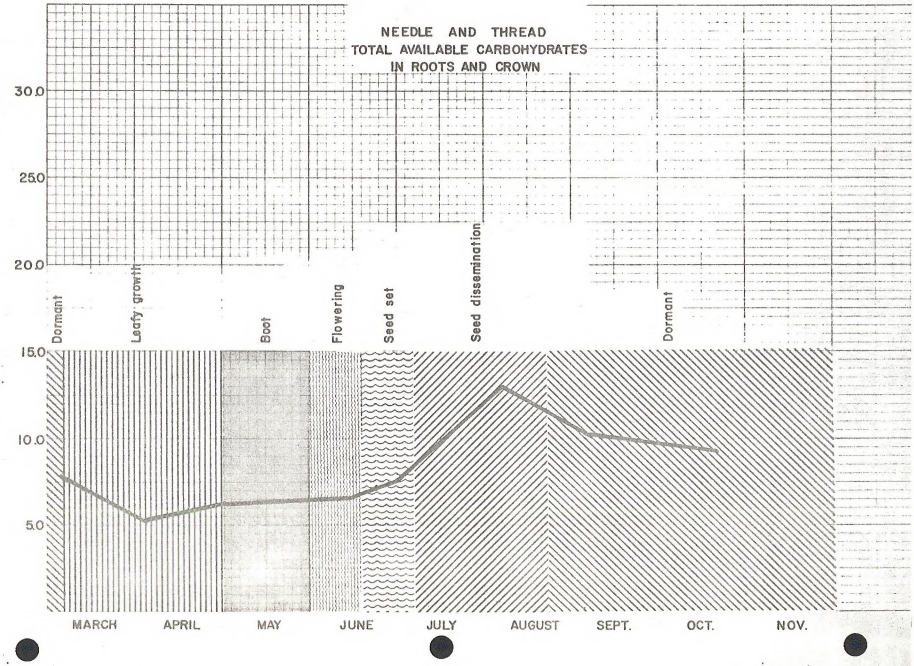
Since the two years results have not been consistent, even with the same species, caution should be used in projecting this data until the studies are completed for a longer period. However, this preliminary information can be used in conjunction with designing a management system in your local area where one or more of these species is used as the key species. Refinement will be made as new data becomes available.

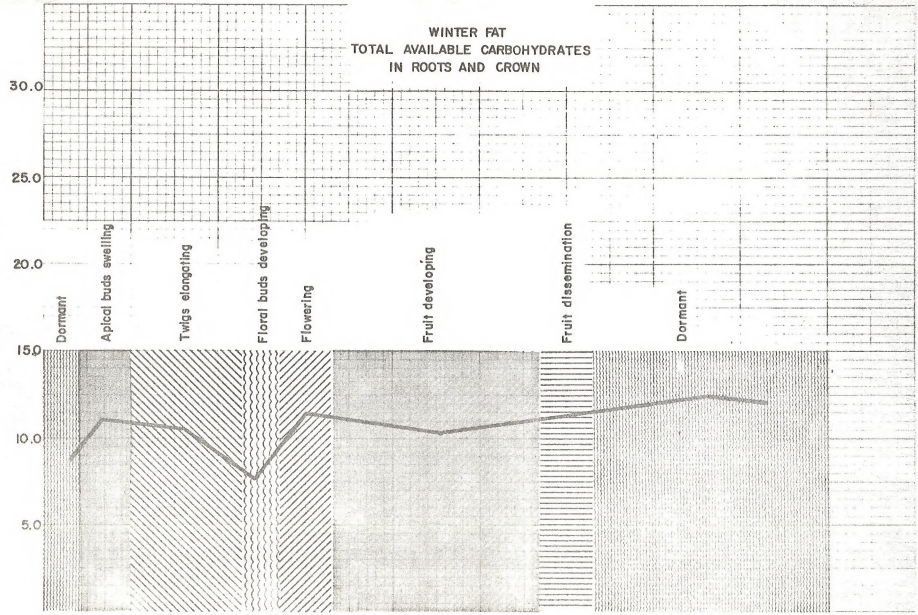
Dr. C. Wayne Cook's publication, "The Role of Carbohydrate Reserves in Managing Range Plants" has some very useful information for making proper use of the enclosed data. Some of the more pertinent findings are as follows:

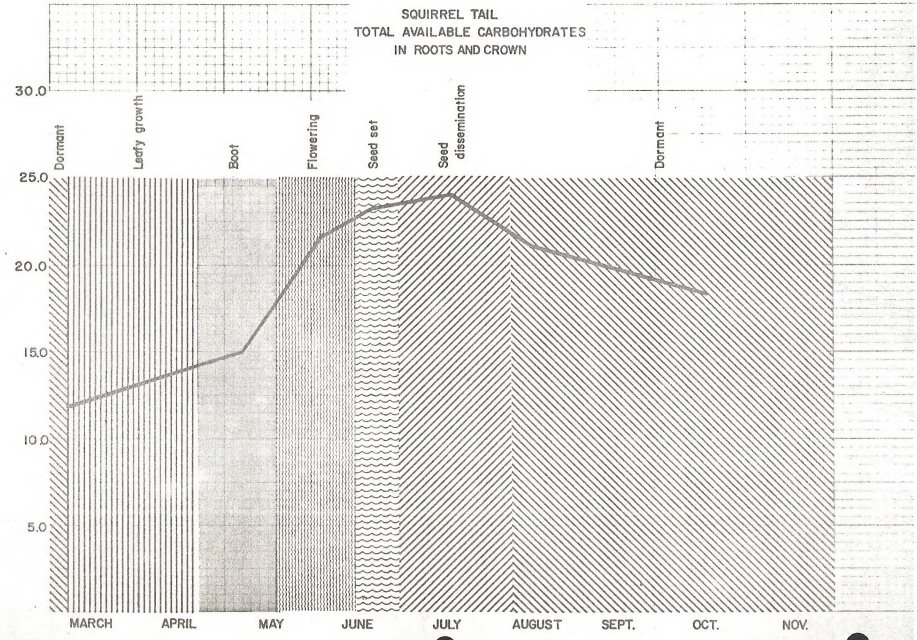
1. "Proper management of range plants does not necessarily imply that a maximum level of carbohydrate reserves must be maintained, but care must be taken to provide that these reserves do not fall below a critical level."

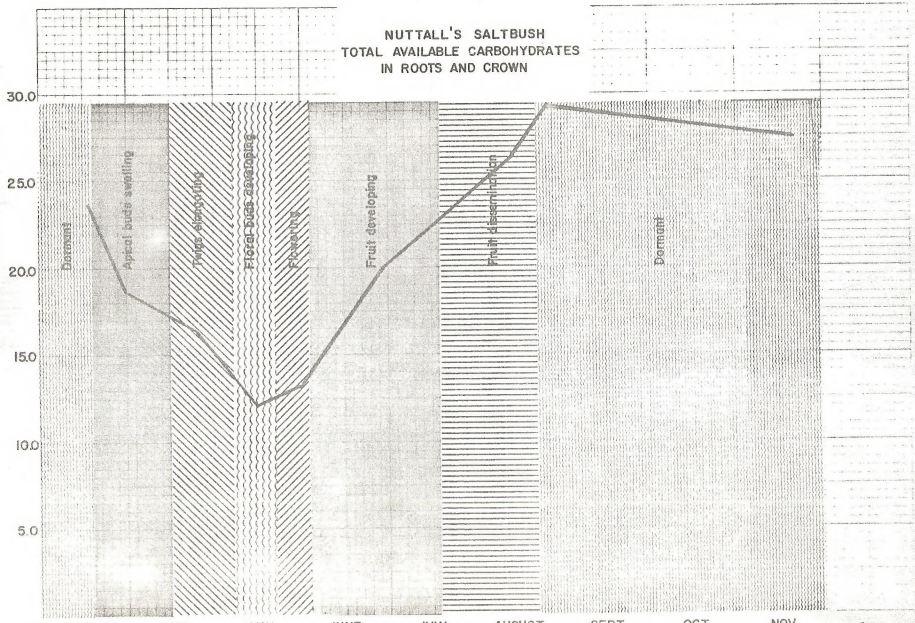
2. "Desert plants will not tolerate heavy and continuous spring use because they do not have an opportunity for regrowth and carbohydrate replenishment during the dry summer."

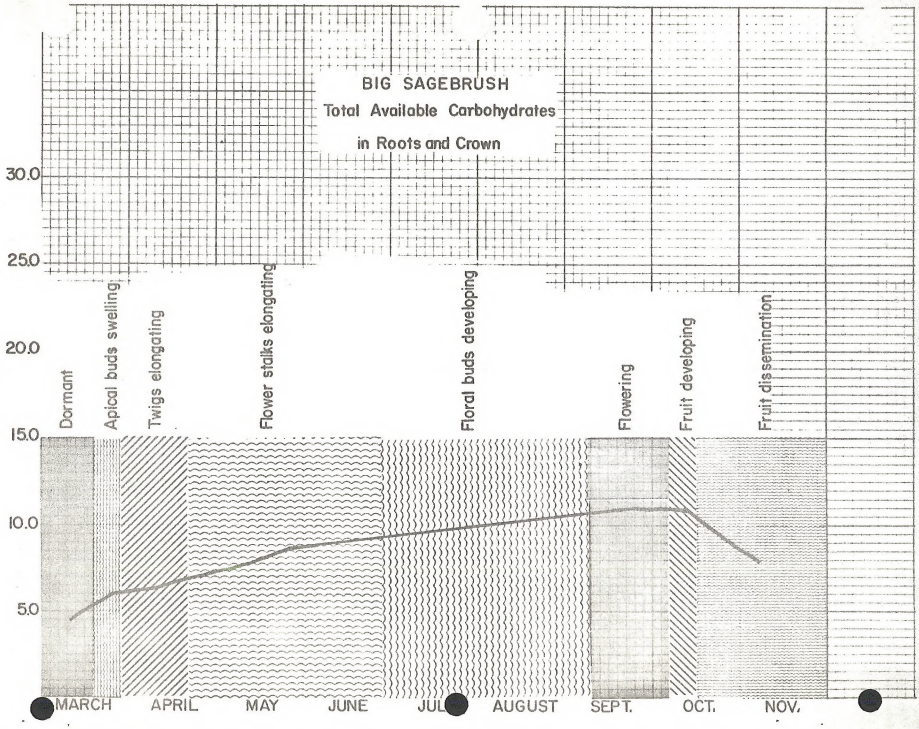
3. "When plants approach maturation, carbohydrate storage reaches its peak. Warm season grasses utilize reserve carbohydrates late into the summer before storage occurs, but the peak in carbohydrate storage may not be reached until later. In cool weather grasses, peaks in carbohydrate storage are often reached in early summer as the plants mature."

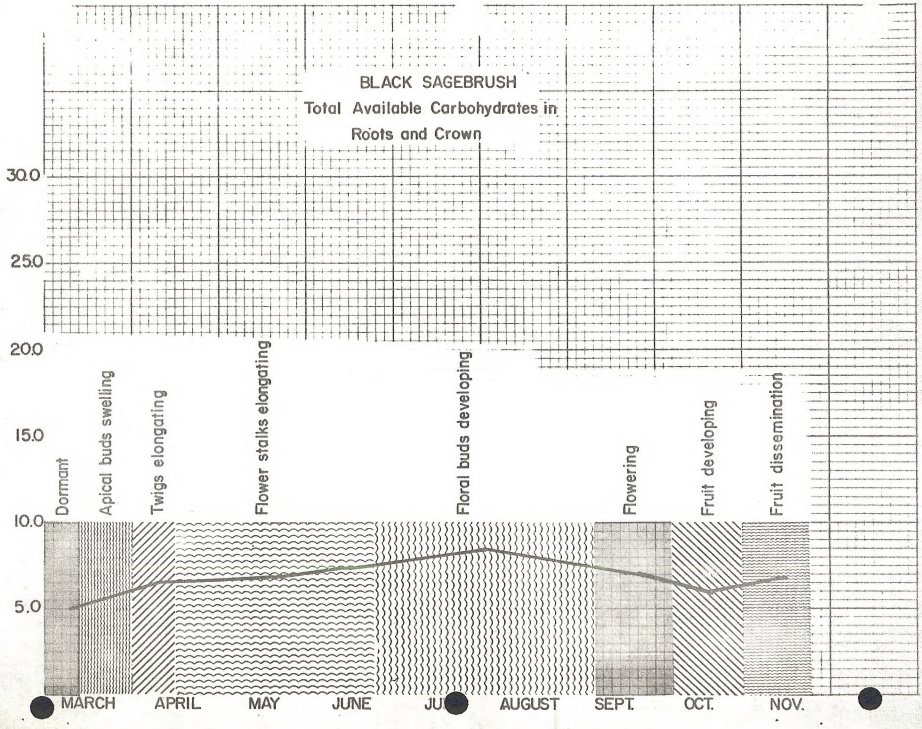

NEEDLE AND THREAD
TOTAL AVAILABLE CARBOHYDRATES
IN ROOTS AND CROWN
30.0
25.0
20.0
15.0
10.0
5.0
Dormant
Leafy growth
Boot
Flowering
Seed set
Seed dissemination
Dormant
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPT.
OCT.
NOV.

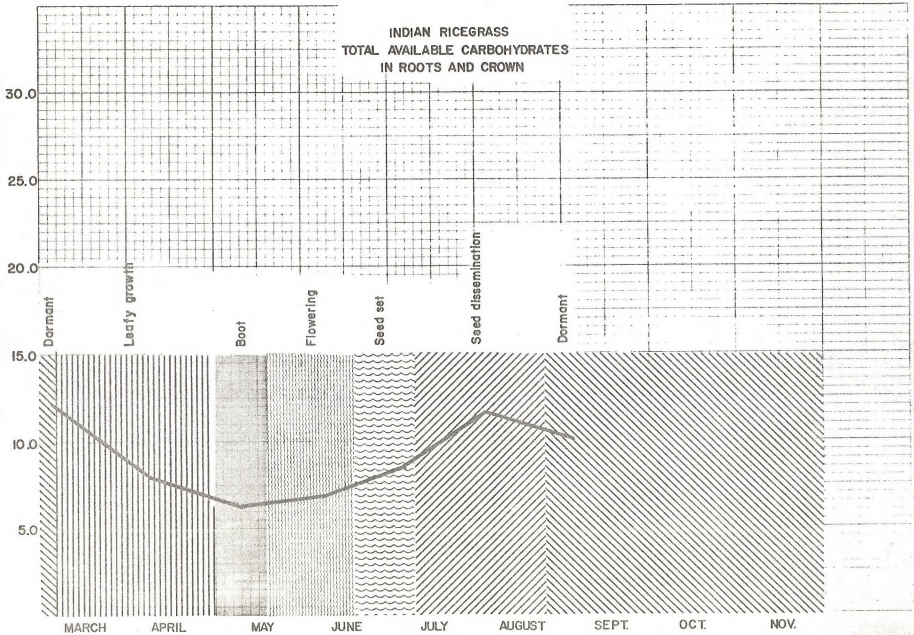

WINTER FAT
TOTAL AVAILABLE CARBOHYDRATES
IN ROOTS AND CROWN
30.0
25.0
20.0
15.0
10.0
5.0
Dormant
Apical buds swelling
Twigs elongating
Floral buds developing
Flowering
Fruit developing
Fruit dissemination
Dormant
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPT.
OCT.
NOV.

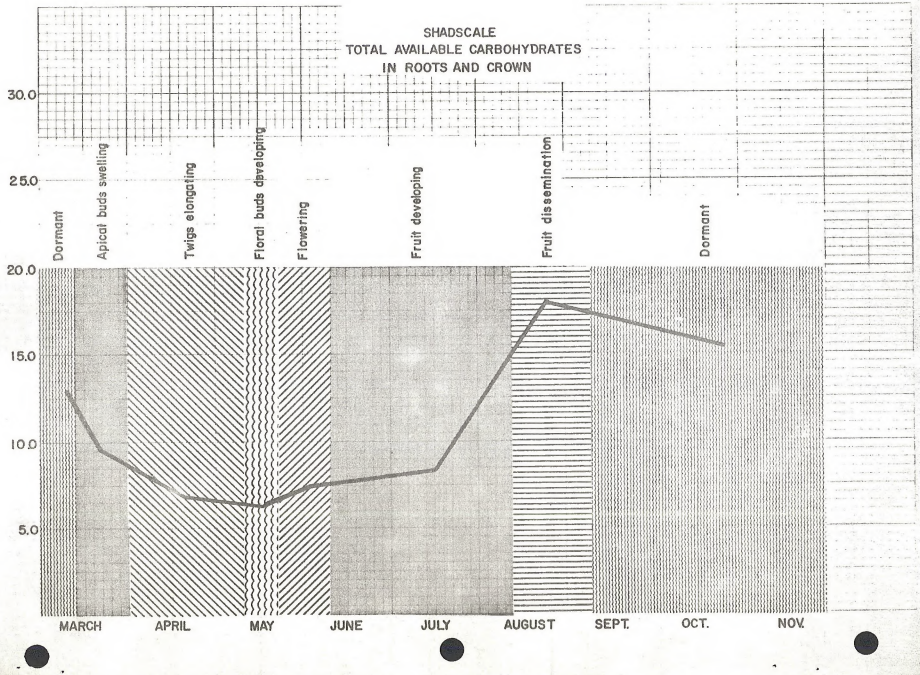

SQUIRREL TAIL
TOTAL AVAILABLE CARBOHYDRATES
IN ROOTS AND CROWN
30.0
25.0
20.0
15.0
10.0
5.0
Dormant
Leafy growth
Boot
Flowering
Seed set
Seed dissemination
Dormant
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPT.
OCT.
NOV.


NUTTALL'S SALTBUSH
TOTAL AVAILABLE CARBOHYDRATES
IN ROOTS AND CROWN
30.0
25.0
20.0
15.0
10.0
5.0
Dormant
Apical buds swelling
Rings elongating
Floral buds developing
Flowering
Fruit developing
Fruit dissemination
Dormant
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPT.
OCT.
NOV.


BIG SAGEBRUSH
Total Available Carbohydrates
in Roots and Crown
30.0
25.0
20.0
15.0
10.0
5.0
Dormant
Apical buds swelling
Twigs elongating
Flower stalks elongating
Floral buds developing
Flowering
Fruit developing
Fruit dissemination
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPT.
OCT.
NOV.


BLACK SAGEBRUSH
Total Available Carbohydrates in
Roots and Crown
30.0
25.0
20.0
15.0
10.0
5.0
Dormant
Apical buds swelling
Twigs elongating
Flower stalks elongating
Floral buds developing
Flowering
Fruit developing
Fruit dissemination
MARCH
APRIL
MAY
JUNE
JU
AUGUST
SEPT.
OCT.
NOV.


INDIAN RICEGRASS
TOTAL AVAILABLE CARBOHYDRATES
IN ROOTS AND CROWN
30.0
25.0
20.0
15.0
10.0
5.0
Dormant
Leafy growth
Boot
Flowering
Seed set
Seed dissemination
Dormant
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPT.
OCT.
NOV.


SHADSCALE
TOTAL AVAILABLE CARBOHYDRATES
IN ROOTS AND CROWN
30.0
25.0
20.0
15.0
10.0
5.0
Dormant
Apical buds swelling
Twigs elongating
Floral buds developing
Flowering
Fruit developing
Fruit dissemination
Dormant
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPT.
OCT.
NOV.